

REMARKS

Upon receipt of this response, the Examiner is respectfully requested to contact the undersigned representative of the Applicant to arrange a telephone interview concerning the inventive merits of this application.

Claims 10, 13-15, 19 and 21-25 are rejected, under 35 U.S.C. § 103(a), as being unpatentable over Leach et al. '174 in view of Akzo '867 and further in view of Wallace '005. The Applicant acknowledges and respectfully traverses the raised obviousness rejection in view of the following remarks.

Much of the Examiner's arguments are directed toward the feature of the claims in which the powder of the first layer has a cure rate that is higher than that of the powder of the second layer. In this regard, the Examiner notes that while there is no explicit teaching in Leach et al. '174 as modified by Akzo '867, that:

.....the first powder cures before the second it would have been obvious to one of ordinary skill in the art to use a first powder having a higher cure rate than the second such that after applying the final curing energy both layers of powder are fully cured rather than the first powder layer.....not fully curing resulting in inadequate adhesion between the powder layers.

However, if the result the Examiner envisages is correct (lack of adequate adhesion between the powder layers) as the basis on which the person of ordinary skill in the art would select the first powder to have the higher cure rate, it is respectfully submitted that that same basis would lead the skilled person to ensure that both powders had the same cure rate. This is because the same inadequate adhesion between the two layers would result whichever powder had the higher cure rate. In the example from Akzo '867 referred to by the Examiner, an epoxy resin is used for the first coating and a polyester-based powder for the second, but there is no certainty that these materials have different cure rates just because one is based on an epoxy resin and the other on a polyester. The rate of cure in each case will be

dependent on the presence or absence of curing and other agents in the materials and their relative proportions, and it is within common practice and ability in the art to use this fact to produce a formulation which has a desired cure rate. It is to be noted that Akzo `867 does not specifically mention that a powder is used for the first coat in the example given in column 5, lines 20-41; indeed, in stark contrast to the way the second coating layer is referred to throughout, Akzo `867 refers to the possibility of the first coat being of powder, only at column 1, lines 42-43 and in Akzo's claim 8.

As acknowledge by the Examiner, Akzo `867 says nothing about relative cure rates and, since it is within the normal capabilities attributable to the skilled person to formulate powders that have cure rates that are arbitrarily the same as one another or different from one another, it is pure speculation based on hindsight to attribute any particular cure-rate relationship to Akzo `867's two layers.

On the above basis, it is respectfully submitted that independent claims 10 and 23, and their dependent claims, as well as independent claim 26 of the present application are all clearly patentably distinguished from Leach et al. `174 in view of Akzo `867. However, the claims are further distinguished patentably from such art in that the independent claims 10, 23 and 26 all specify a method of coating in which two layers of powder are deposited one upon the other, that is, powder upon powder. In claim 10, this feature is expressed as:

.....two different thermosetting materials are laid down in powder form as two successive layers one upon the other on a substrate.....the powder of the second layer being deposited on the powder of the first layer.....

and in claim 23, it is expressed as:

.....two different thermosetting materials.....are deposited in powder form as two successive layers one upon the other on the substrate.....the method comprising the step of:

depositing the powder of the second successive layer on the powder of the first successive layer.....

and in claim 26, it is expressed as:

depositing the powder of the second successive layer on the powder of the first successive layer while the first successive layer is in powder form;

applying heat to the first and second successive layers only following deposit of the powder of the second successive layer on the powder of the first successive layer while the two layers are both in the powder form.....

Furthermore, claims 10, 23 and 26 require that heat to melt the powder of the first layer is applied only after the two layers of powder have been established one upon the other, powder upon powder. This is expressed in claim 10 as:

.....the heat being applied only following deposit of the powder of the second layer on the powder of the first layer while the two layers are both in the powder form.....

and in claim 23 as:

applying heat to the first and second successive layers only following deposit of the second successive layer on the powder of the first successive layer while the two layers are both in the powder form.....

and in claim 26 as

applying heat to the first and second successive layers only following deposit of the powder of the second successive layer on the powder of the first successive layer while the two layers are both in the powder form....

In support of rejection of the claims, the Examiner argues that:

It would have been obvious to one of ordinary skill in the art.....to apply a second powder coating successive to the first powder coating taught by Leach et al. '174....

Justification for this position is based on the assertion that:

.....it was well known in the art to include a second transparent powder layer in coatings for architectural applications to protect the first powder coating as shown by Akzo '867.

The Applicant would not question this latter assertion when expressed in those general terms, but would draw attention to the fact that the essence of the Leach et al. '174 teaching is that the powder deposited to form the "first" coating is melted before anything is brought into

contact with it. Accordingly, to the extent the Examiner is suggesting it would have been obvious to apply a "second powder coating" to the "first powder coating" taught by Leach et al. '174, it is to be clearly understood that the teaching of Leach et al. '174 dictates that such application would take place after the powder of the "first" powder coating is melted.

Thus, the essential features of claims 10, 23 and 26 that the second powder layer is deposited on the first layer while the first layer is in the powder form, and heat to melt the powder of the first layer is applied only after the two layers of powder have been established one upon the other, is not to be found in the Leach et al. '174 teaching. According to Leach et al. '174, the "first" layer of powder is melted before anything is brought into contact with it. Leach et al. '174 does not teach, suggest or disclose the deposition of powder on their "first" powder coating, but if this were to be done (and it is submitted that it would not have been obvious to do this), it could only be done in accordance with the Leach et al. '174 teaching after the powder forming the "first" layer had been melted. Anything different from this would be contrary to the specific teaching and in mutilation of it.

The Examiner states that Akzo '867 teaches:

.....a method for applying the coating comprising applying a first thermosettable powder resin layer to a substrate, applying a second/different thermosettable resin layer onto the first layer and curing both layers after their application while they are in powder form.

This statement is ambiguous as to when curing of each individual layer of powder takes place. In particular - and of especial relevance to the claims of the present application - it is unclear whether the statement is intended to contend that both layers are in powder form powder on powder, before curing takes place. If this is the intended contention, then it is submitted that it is clearly not supported by the disclosure of Akzo '867.

Of the Examiner's specific references to the text of Akzo '867, the only passage that might conceivably be seen as providing some possible support for alleging that Akzo '867

teaches application of powder on powder, is in column 4, lines 25-33. In this passage, Akzo '867 states (lines 25-27) that:

.....the first layer can be a cured layer but also a non- or partially cured layer....before the "second coating layer" is applied. The relevant words here are "non- or partially cured". The intended meaning of these words is not immediately apparent because it is not possible to determine whether the "or" between "non-" and "partial" is to be interpreted in a conjunctive sense (that is, in the sense that "non-" and "partial" are different ways of referring to one and the same state) or in a disjunctive sense (that is, in the sense that "non-" and "partial" refer to different states). If the "or" was being used in a conjunctive sense the words "non- or partially cured layer" would refer to the layer being in the state in which curing has begun but has not yet been completed, whereas if "or" was being used in a disjunctive sense the words would be referring to different states one prior to start of the curing process and the other in which it has begun but has not been completed.

Before considering these issues, it is necessary to appreciate the stages by which powder coatings are brought through to complete cure. The layer of deposited powder is initially subjected to heat to melt it and result in a fused body. The application of further heat brings the body of material into a liquid state in which cross-linking begins, and then with the application of further heat, it is brought into a gel state. The continued application of heat completes the cross-linking to bring the material into the fully-cured state. The process of curing does not begin until heat is applied from the fused state to begin the cross-linking.

With the conjunctive interpretation of "non- or partially cured", it is clear that the "first layer" is not in the powder state when the "second coating layer" is applied to it. The curing process has begun but is not complete - the layer is both "non-cured" and "partially cured" because the cure is uncomplete. Thus, with this interpretation the "first layer" is definitely not in the powder state when the second coating layer is applied.

This "conjunctive" interpretation is support by Akzo '867 in three ways. First, support comes syntactically from the way in which the two statements about the "first layer", one that

it can be "a cured layer" and the other that it can be "a non- or partially cured layer", are weighed against one another by the linking "but also".

Secondly, support comes from the working of the remainder of the reference passage where it is stated (column 4, lines 30-32) that:

.....the first layer is applied as a base over which the second metallized transparent powder coating is applied.....

The reference to the first layer as "a base" for application of the second coating, is very suggestive texturally of a firmness not attributable to powder.

Third, support for a conjunctive interpretation is to be found in the claims of the Akzo '867 patent specification. Claim 13 specifies that the first coating layer "has optionally been partially or fully cured" when the "second metallized transparent powder coating" is applied to it, and claim 14, which is only dependent on claim 13, specifies that the "first coating layer has not been cured". In view of the dependency of claim 14 on claim 13, claim 14 is directed to the special case where the "first coating layer" is only partially cured, that is to say, in which it "has not be cured".

Adoption of a disjunctive interpretation of "non-or partially cured", however, immediately creates an anomaly in the dependence of claim 14 on claim 13. Also, it raises the question of what is to be understood by a "non-cured layer" as distinct from "partially cured layer". The meaning could refer to the state of the layer at any time between fusing of the powder and the fully-cured state (that is to say, it could refer to the condition which exists from when heat is first applied to the powder and completion of the cure). Alternatively, it could refer just to that state in which the powder is fused and until just before cross-linking begins (that is to say, prior to the beginning of the curing process). There is no suggestion, explicit or implicit, that it refers to the powder state.

In all the above circumstances, it is submitted that one of ordinary skill in the art would not unambiguously, and without doubt, understand what Akzo '867 is teaching in the reference to "non- or partially cured layer"; there are a plurality of possible meanings and Akzo '867 says

nothing that helps to resolve the ambiguity and uncertainty, other than what can be deduced from basic syntax, textural suggestion, and the dependency of claim 14 on claim 13. The bias must be towards a meaning in which the "first coating" is partially cured before the "second coating layer" is applied - a meaning which is favored by syntax, textural suggestion and Akzo '867's claims. On this basis, it is clear that what Akzo '867 discloses is not in accordance with the requirements of the claims of the present application, namely, for the second layer of powder to be laid down on the first layer of powder, that is, powder on powder. Accordingly, it is submitted that what is claimed in the present application is not obvious from what Akzo '867 discloses, or from Leach et al. '174 in view of Akzo '867.

Claim 20 is rejected by the Examiner on the basis of Leach et al. '174 and Akzo '867 in view of Wallace '005. Claim 20 is dependent on claim 10 and since, as argued above, claim 10 is patentable over Leach et al. '174 in view of Akzo '867, it is submitted that claim 20 is similarly patentable over Leach et al. '174 and Akzo '867 in view of Wallace '005.

Reference has previously been made to the "unexpected results" achieved with the present invention as defined by independent claims 10 and 23. There are significant advantages in using the powder-upon-powder technique of the present invention claimed in claims 10 and 23, more especially since it enables: (i) the intermingling of the powders of the two layers to improve the bond between them in the final produce (page 4, lines 7-12 of the PCT text); (ii) the avoidance of run and orange-peel imperfections (page 5, lines 5-24); and (iii) the economy of use of a one-oven production line (page 5, lines 6-17). This latter advantage is of great importance economically since the two layers can be deposited one after the other without the need for any intermediate step. The substrate enters the powder-depositing station to have both layers deposited on it one upon the other in one pass through that station, and then enters the oven for curing of the first layer and partial curing of the second, similarly in one pass through the oven. A continuous production line can, therefore,

be readily set up without the need to duplicate the powder-deposition station or the oven, so as give maximum economy in capital cost, space requirement, running costs and maintenance.

In view of the foregoing amendments and remarks, it is respectfully submitted that all of the raised rejections should be withdrawn at this time. If any further amendment to this application is believed necessary to advance prosecution and place this case in allowable form, the Examiner is courteously solicited to contact the undersigned representative of the Applicant to discuss the same.

In view of the above amendments and remarks, it is respectfully submitted that all of the raised rejection(s) should be withdrawn at this time. If the Examiner disagrees with the Applicant's view concerning the withdrawal of the outstanding rejection(s) or applicability of the Leach et al. '174, Akzo '867 and/or Wallace '005 references, the Applicant respectfully requests the Examiner to indicate the specific passage or passages, or the drawing or drawings, which contain the necessary teaching, suggestion and/or disclosure required by case law. As such teaching, suggestion and/or disclosure is not present in the applied references, the raised rejection should be withdrawn at this time. Alternatively, if the Examiner is relying on his/her expertise in this field, the Applicant respectfully requests the Examiner to enter an affidavit substantiating the Examiner's position so that suitable contradictory evidence can be entered in this case by the Applicant.

In view of the foregoing, it is respectfully submitted that this application is now placed in a condition for allowance. Action to that end, in the form of an early Notice of Allowance, is courteously solicited by the Applicant at this time.

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Respectfully submitted,



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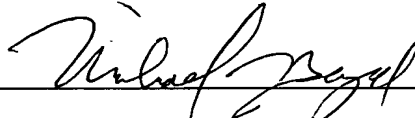
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March 22, 2004.

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